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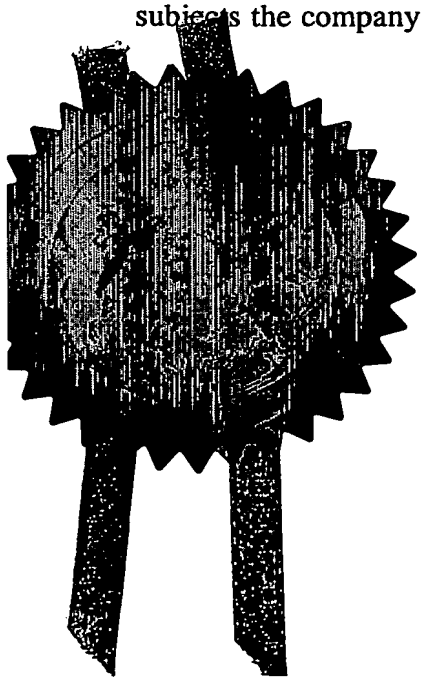

Signed

Dated 20 August 2004

Patents Form 1/77

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P01/7700 0.00-0325589.0

Request for grant of a patent

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3 NOV 2003

The Patent Office
Cardiff Road
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1. Your reference 70578/P105038GB

2. Patent application number *(The Patent Office will fill in this part)* 0325589.0

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Mr Paul McBride
25 Wall Road
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United Kingdom

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Leedstown
Cornwall TR27 6BA
United Kingdom

Patents ADP number *(if you know it)* 8689747001 8689762001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention Device for Covering the Eyes

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

WITHERS & ROGERS
Goldings House
2 Hays Lane
London
SE1 2HW

Patents ADP number *(if you know it)* 1776001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
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Patents Form 1/77

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Continuation sheets of this form	
Description	7
Claim(s)	4
Abstract	1
Drawing (s)	5

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Priority documents	
Translations of priority documents	
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	
Request for preliminary examination and search *(Patents Form 9/77)*	
Request for substantive examination *(Patents Form 10/77)*	
Any other documents *(please specify)*	

11. I/We request the grant of a patent on the basis of this application.

Signature Date 31/10/03

12. Name and daytime telephone number of person to contact in the United Kingdom John Dean 0117 925 3030

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P105038GB

Device for Covering the Eyes

This invention relates to a device for covering the eyes particularly, though not exclusively, for use in watersports such as swimming.

Swimming is a popular form of recreation throughout the world, many people daily going swimming to keep fit, train for or participate in competition, or simply to have fun. The equipment needed to conduct this sport is inexpensive in contrast to some other sports.

Swimming goggles and masks are used by many swimmers to provide clear vision for the wearer and to help prevent water contacting the eyes, which may be affected by water additives such as chlorine. Due to the awkward shape of the face, the design of such equipment has been constrained to the well-known traditional swimming goggles, which provide two small individual lenses to fit around each eye socket and diving masks, which provide a single visor encompassing the whole region of both eyes. Each design has its own advantages but also limitations.

Diving masks improve visibility and provide a watertight seal but are cumbersome and produce too much drag for use whilst swimming at speed. "Seal Mask" (Aqua Sphere, Vista, California, USA) is a more hydrodynamically shaped mask, designed for triathletes who require improved visibility from a mask resistant to being kicked or pulled off during races. However it is still relatively cumbersome compared to the swimming goggles used by speed swimmers. Such goggles are more streamlined but cannot be worn whilst scuba diving because of the pressure generated around the eye socket and reduced visibility compared to a diving mask. In addition, many wearers find that swimming goggles do not provide an adequate seal, allowing leakage into the goggles. As a result of contact with the water, the eyes can become irritated and may also be infected with conditions such as *purpura gogglorum*, an infection which can result in permanent damage to the eye, including loss of sight.

An example of swimming goggles of the traditional design is described in United States patent US-A-6079054. In this patent the lenses, nose bridge and seals are of unitary construction and are held in position on the wearer's head by an elastic strap.

British patent application GB-A-2326078 relates to swimming goggles mounted directly on a swimming cap. The goggles are held in position on the wearer's face by means of the swimming cap stretching to cover both the wearer's head and goggles. The aim of the construction shown in the application is to reduce the internal misting of goggles experienced by some users. Other integrated swimming cap/goggle designs are disclosed in Japanese patent application JP-A-090140829 and United States patents US-A-608539 and US-A-5713078. None of these specifications address the problem of goggle leakage.

European patent application EP-A-1180383 relates to modifications in the design of the traditional swimming goggle in an attempt to improve the seal between the wearer's face and the goggles. The applicant has varied features of the parts of the goggles which make contact with the wearer's face. The invention represents a variation on the design of the traditional goggle style.

According to a first aspect of the invention there is provided a device for covering the eyes comprising a face-covering element, formed by transparent elastic material, which, in use, is stretched to sealingly cover the wearer's eyes, and arms which, in use, extend around the wearer's head to hold the device in place. The elastic material may be an elastomer material.

It is an advantage of the current invention that the device fits over the eyes of the wearer and encircles the head, making contact with the skin around the forehead, across the nose and cheeks and, in at least some embodiments, at the sides of the face in front of the ears. This, coupled with the use of elastic material, generates an improved seal over currently available goggles. In addition, the increased pressure around the eye, associated with the use of goggles as a result of the positioning of goggles in the eye socket, is not a factor in the use of devices in accordance with the current invention. This invention represents a completely new approach to solving the problem of designing a device which will cover the wearer's eyes and prevent water making contact with the eyes.

The face-covering element of the device may be of unitary construction.

The thickness of the material forming the face-covering element may vary. Preferably, the thickness of the material forming the face-covering element may be greater towards the centre of the face-covering element.

The device may form a band which, in use, encircles a wearer's head. Alternatively, the arms of the device may be releasably fastened together by fastening means. The fastening means may preferably comprise a hook and loop fastening material, more preferably Velcro®.

The device has an upper edge which makes sealing contact with a wearer's forehead and preferably may also make sealing contact with a wearer's head above the ears. Most preferably the upper edge of the device will make sealing contact with both of these parts of a wearer's head.

The device has a lower edge which makes sealing contact with a wearer's face across the nose and preferably may also make sealing contact with a wearer's face across the nose and preferably may also make sealing contact with a wearer's face across the cheeks and/or with a wearer's head under the ears. Most preferably the lower edge of the device will make sealing contact with all of these parts of a wearer's head.

The material of the device may make sealing contact with the side of a wearer's face in front of the ears.

Most preferably, the material of the device will make contact with all of the above-mentioned parts of a wearer's head.

The arms of the device may be of unitary construction with the face-covering element and form cut-outs such that, in use, the wearer's ears are not covered by the device. Alternatively, the arms may be constructed from a different material to the face-covering element and define an aperture in the device such that, in use, the wearer's ears are not covered. The arms may be constructed from a Lycra®-containing material. Preferably, the arms are arranged such that at least one arm extends around a wearer's head above each ear and at least one arm extends around the head below each ear.

The device may comprise at least one eye-sealing element. The or each of the eye-sealing element(s) may be of unitary construction with the face-covering element. There may be one eye-sealing element comprising a protrusion from the inner surface of the device, which defines an eye-covering region. There may alternatively be two eye-sealing elements, each comprising a protrusion from the inner surface of the device, each of which defines an eye-covering region. The term "inner surface", as used throughout this specification, means the surface of the device which, in use, is face-facing. The protrusion(s) may be substantially L-shaped. The or each protrusion(s), in use, may make sealing contact with the wearer's face around the eyes and may space the material forming the inner surface of the or each eye-covering region(s) from the eye or eyes.

The device may comprise means for affixing a rigid transparent member to the device to cover an eye-covering region. The rigid transparent member may be held in place in a groove formed by a lip formed in the eye-sealing element which defines the eye-covering region. The rigid transparent member may be affixed to the inner side of the device. The term "inner side", as used throughout this specification, means the side of the device which, in use, is face-facing. The rigid transparent member may cover only one or more eye-covering regions, each defined by an eye-sealing element. The rigid transparent member may be not colourless.

According to a second aspect of the invention there is provided a swimming mask in the form of a device according to the invention.

Embodiments of the invention will now be described, by way of example only, with reference to the following Figures 1 to 9 in which:

Figure 1 shows a plan view of an embodiment of a device according to the invention;

Figure 2 shows a cross-section of a device according to the invention along the line A-A;

Figure 3 shows a cross-section along the line A-A of an alternative embodiment of a device according to the invention;

Figure 4 shows an elevation of an embodiment of a device according to the invention in position on the wearer;

Figure 5 shows a side view of an embodiment of a device according to the invention in position on the wearer;

Figure 6 shows a rear view of an embodiment of a device according to the invention in position on the wearer;

Figure 7 shows a rear view of an alternative embodiment of a device according to the invention in position on the wearer;

Figure 8 shows a plan view of an alternative embodiment of a device according to the invention; and

Figure 9 shows a side view of an alternative embodiment of a device according to the invention in position on the wearer.

Figure 1 shows a device according to the invention, formed by a transparent elastic material (1). The device comprises a face-covering element (5) and arms (10) which define cut-outs (15) having edges (20). Mouldings on the inner, that is, face-facing, surface of the device define eye-covering regions (25). The device has an upper edge (35) and a lower edge (40). Advertising and/or sponsorship logos may appear on the material forming the arms (10) or the face-covering element (5) of the device.

Figure 2 shows a cross-sectional view of the sheet forming the device according to the invention. The material forming the device is moulded to form L-shaped protrusions, or eye-sealing elements (30) on the inner or face-facing surface of the device, which define each eye-covering region (25). The thickness (shown between the arrows X-X) of the material between the eye-covering regions (25) is greater than the thickness (shown between the arrows Y-Y) of the material at the edges (20) of the cut-outs formed by the

arms. This variation in thickness serves to reduce the flexibility and elasticity of the device in the eye-covering regions.

Figure 3 shows a cross section along the line A-A of an alternative embodiment of a device according to the invention. The thickness (shown between the arrows V-V) of the transparent elastic material between the eye-covering regions (25) is greater than the thickness (shown between the arrows W-W) of the material at the edges (20) of the cut-outs formed by the arms. The material forming the device is also moulded to form L-shaped protrusions, or eye-sealing elements (30) on the inner surface of the device, in which are formed lips (80) which define a groove (85) in the eye-sealing element in which a replaceable transparent rigid sheet may be placed, to cover the eye-covering region defined by the eye-sealing element. Such rigid sheets may comprise a plastics material which may be colourless, may be tinted with transparent colour or may be patterned. The rigid sheets, when held in place by the lips (80) in each eye-sealing element (30), may also serve to further reduce the flexibility of the device in the eye-covering region.

In the embodiments shown in Figures 2 and 3, the portions of the L-shaped protrusions which contact the users face are on the inside of the eye-covering region. In an alternative embodiment those portions may extend outwardly (i.e. so the "L" apparent in those figures is orientated in the opposite direction) so as to provide greater user comfort.

Figures 4 and 5 show a front and side view of a device according to the invention in use, positioned on the wearer's head. The upper edge (35) is positioned across the forehead and the lower edge (40) is positioned across the wearer's nose and cheeks. The contact made with the wearer's head by the device at the upper (35) and lower (40) edges and at the edges (20) of the cut-outs (15) of the device, as the device is stretched to extend around the wearer's head, creates a seal such that water does not make contact with the wearer's eyes. The eye-sealing elements (30) formed on the inner surface of the device make contact with the wearer's face around, but not in, each eye socket and create a further seal around each eye. Each eye-sealing element also spaces the material of the inner surface of each eye-covering region from the eye. The cut-outs (15) allow the device to be positioned on the wearer's head without covering the ears. Arms (10) can be seen in Figure 5 to extend around the wearer's head to meet at the rear.

In the embodiment of the invention illustrated in Figure 6, a rear view of a device according to the invention in use, positioned on the wearer's head, the arms (10) can be seen to be continuous with one another. Alternatively, the arms (10) may have ends which can be releasably fastened together in use with fastening means. Figure 7 shows a rear view of a device according to the invention positioned on the wearer's head, with ends (45, 50) of each pair of arms (10) separated from one another and folded back to reveal fastening means (55), for example, a hook and loop fastening material such as Velcro®.

In an alternative embodiment of the device, the arms of the device are not of unitary construction with the face-covering element of the device. A plan view of a device according to this embodiment of the invention is shown in Figure 8. The face-covering element (5) of the device is formed by a transparent elastic material (1) which has an upper edge (35) and a lower edge (40) and is shaped at the short edges of the material to form shaped side edges (60) to the device. Arms (65) are formed from a material different to the transparent elastic material and are fixed to the sheet at the short edges (75) above and below each shaped side edge (60). The material forming the arms may be an elastic material, for example, a Lycra®-containing material.

Figure 9 shows a device according to this embodiment of the invention in use, positioned on the wearer's head. The upper edge (35) is positioned across the forehead and the lower edge (40) is positioned across the wearer's nose and cheeks. The contact made with the wearer's head by the device at the upper (35) and lower (40) edges and at the shaped side edges (60), as the device is stretched to extend around the wearer's head, creates a seal such that water does not make contact with the wearer's eyes. The eye-sealing elements (30) formed on the inner surface of the device make contact with the wearer's face around, but not in, each eye socket and create a further seal around each eye. Each eye-sealing element also spaces the material of the inner surface of each eye-covering region from the eye. Arms (65) extend around the wearer's head to meet at the rear. The arms may be continuous with one another or they may have ends which may be releasably fastened by fastening means, as discussed above.

Claims

1. A device for covering the eyes comprising a face-covering element, formed by transparent elastic material, which, in use, is stretched to sealingly cover the wearer's eyes, and arms which, in use, extend around the wearer's head to hold the device in place.

2. A device for covering the eyes comprising a face-covering element, formed by transparent elastic material, which, in use, is stretched to sealingly cover the wearer's eyes, and arms which, in use, extend around the wearer's head to hold the device in place.

3. A device according to claim 1 or 2 wherein the face-covering element is of unitary construction.

4. A device according to any preceding claim wherein the thickness of the material forming the face-covering element varies.

5. A device according to claim 4 wherein the thickness of the material forming the face-covering element is greater towards the centre of the face-covering element.

6. A device according to any preceding claim wherein the device forms a band which, in use, encircles a wearer's head.

7. A device according to any of claims 1 to 5 wherein the arms are releasably fastened together by fastening means.

8. A device according to claim 7 wherein the fastening means comprises a hook and loop fastening material.

9. A device according to claim 8 wherein the hook and loop fastening material is Velcro®.

10. A device according to any preceding claim wherein the device has an upper edge which makes sealing contact with a wearer's forehead.

11. A device according to any preceding claim wherein the device has an upper edge which makes sealing contact with a wearer's head above the ears.

12. A device according to any preceding claim wherein the device has a lower edge which makes sealing contact with a wearer's face across the nose.

13. A device according to any preceding claim wherein the device has a lower edge which makes sealing contact with a wearer's face across the cheeks.

14. A device according to any preceding claim wherein the device has a lower edge which makes sealing contact with a wearer's head under the ears.

15. A device according to any preceding claim wherein the material of the device makes sealing contact with the side of a wearer's face in front of the ears.

16. A device according to any preceding claim wherein the arms are of unitary construction with the face-covering element and form cut-outs such that, in use, the wearer's ears are not covered by the device.

17. A device according to any of claims 1 to 15 wherein the arms are constructed from a different material to the face-covering element and define an aperture in the device such that, in use, the wearer's ears are not covered.

18. A device according to claim 17 wherein the arms are constructed from a Lycra®-containing material.

19. A device according to claim 16, 17 or 18 wherein the arms are arranged such that at least one arm extends around a wearer's head above each ear and at least one arm extends around the head below each ear.

20. A device according to any preceding claim which further comprises at least one eye-sealing element.

21. A device according to claim 20 wherein the or each of the eye-sealing element(s) is/are of unitary construction with the face-covering element.

22. A device according to claim 20 or 21 wherein there is one eye-sealing element comprising a protrusion from the inner surface of the device, which defines an eye-covering region.

23. A device according to claim 20 or 21 wherein there are two eye-sealing elements, each comprising a protrusion from the inner surface of the device, each of which defines an eye-covering region.

24. A device according to claim 22 or 23 wherein the or each protrusion is substantially L-shaped.

25. A device according to any of claims 20-24 wherein the or each protrusion(s), in use, makes sealing contact with the wearer's face around the eyes.

26. A device according to any of claims 20-25 wherein the or each protrusion(s), in use, spaces the material forming the inner surface of the or each eye-covering region(s) from the eye or eyes.

27. A device according to any preceding claim which further comprises means for affixing a rigid transparent member to the device to cover an eye-covering region.

28. A device according to claim 27 wherein the rigid transparent member is held in place in a groove formed by a lip formed in the eye-sealing element which defines the eye-covering region.

29. A device according to claim 27 or 28 wherein the rigid transparent member is affixed to the inner side of the device.

30. A device according to any of claims 27-29 wherein the rigid transparent member covers only one or more eye-covering regions, each defined by an eye-sealing element.

31. A device according to any of claims 27-30 wherein the rigid transparent member is not colourless.

32. A swimming mask in the form of a device according to any preceding claim.

33. A device substantially as herein described and as illustrated in the accompanying figures 1-9.

ABSTRACT

A device for covering the eyes comprises a face-covering element, formed by transparent elastic material, which, in use, is stretched to sealingly cover the wearer's eyes, and arms which, in use, extend around the wearer's head to hold the device in place. The device is particularly suitable for use as a swimming mask.

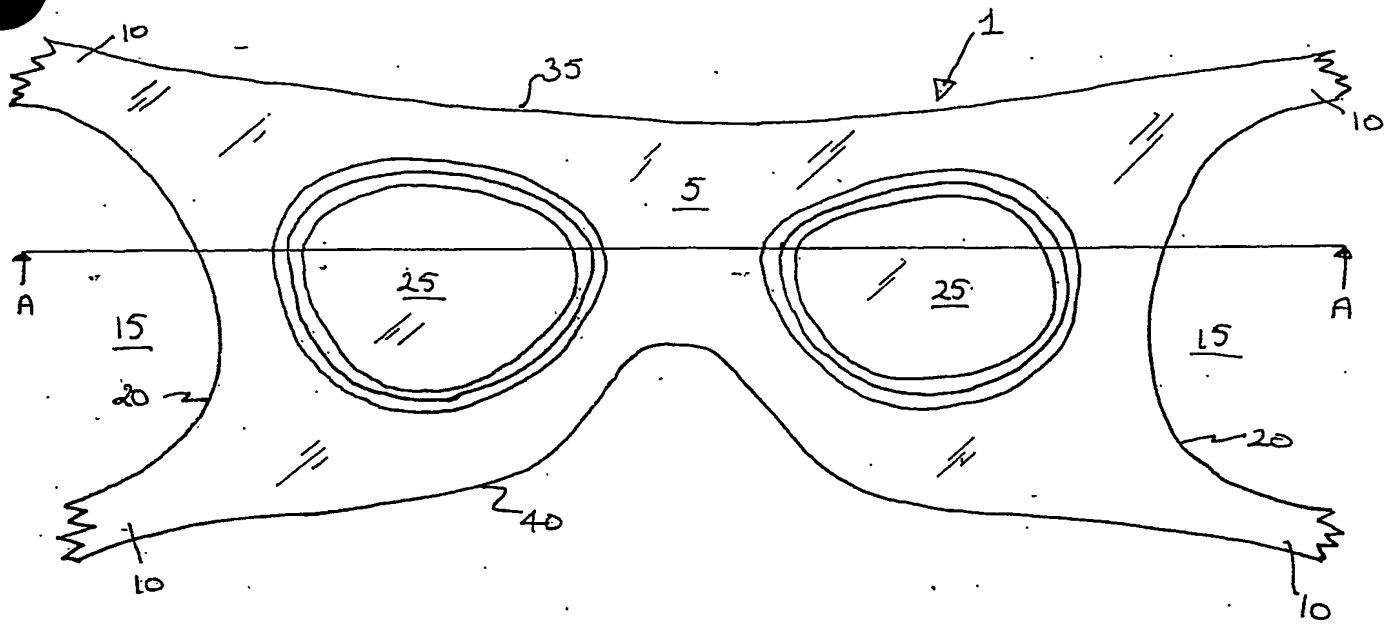
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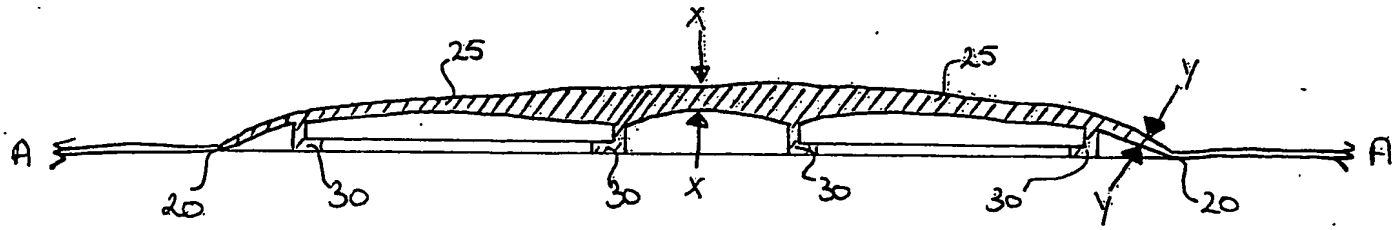
FIG 1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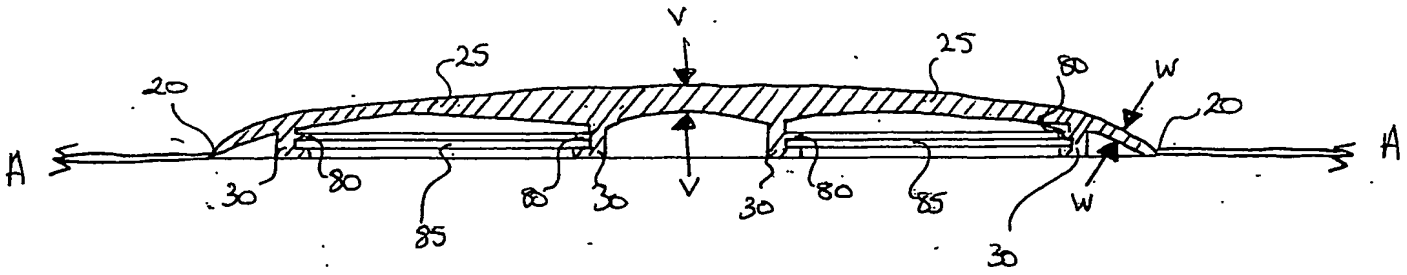
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FIG 3

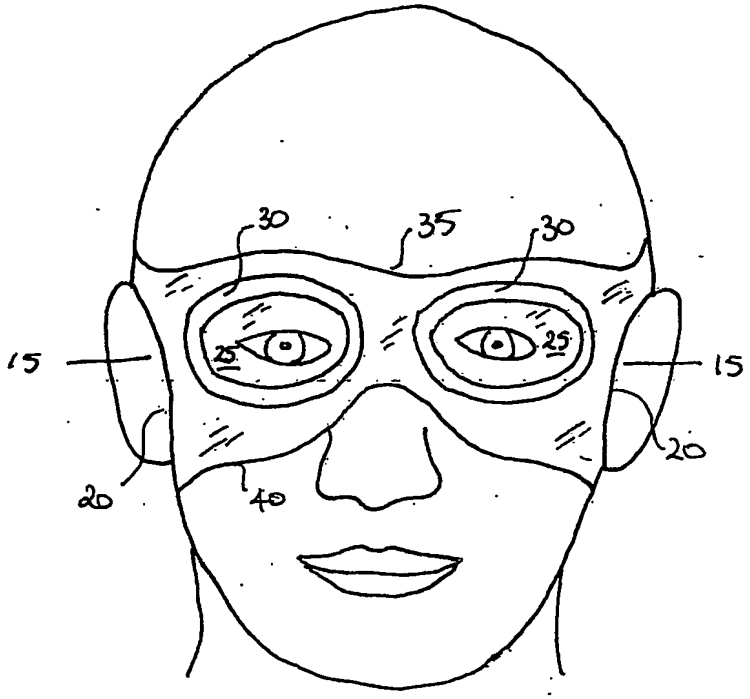
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FIG 4

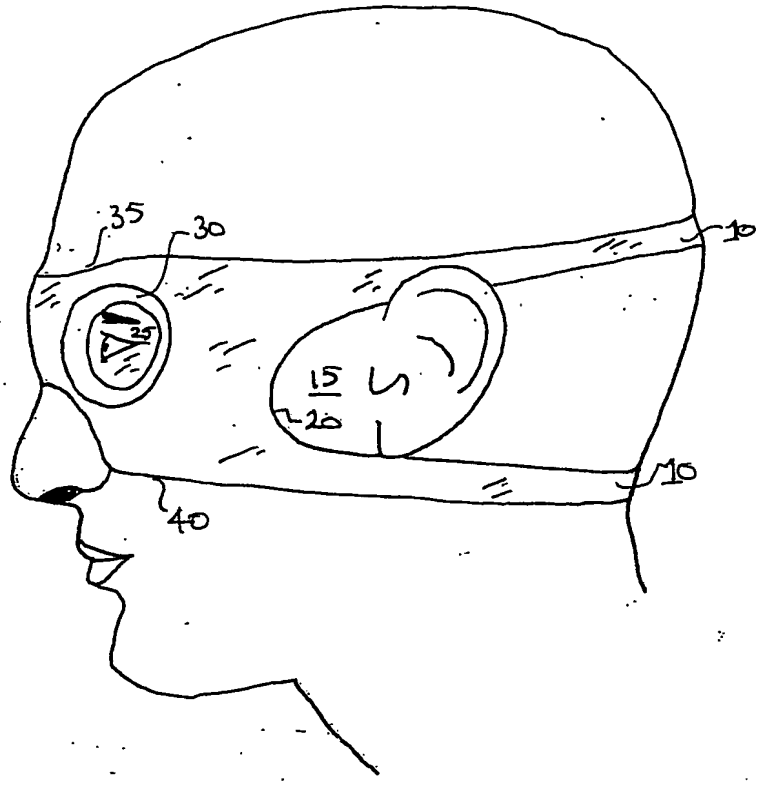

FIG 5

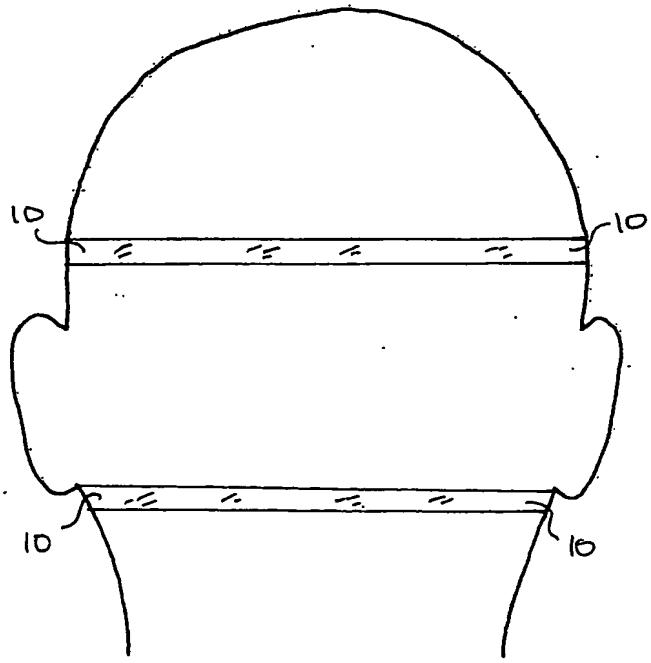

FIG 6

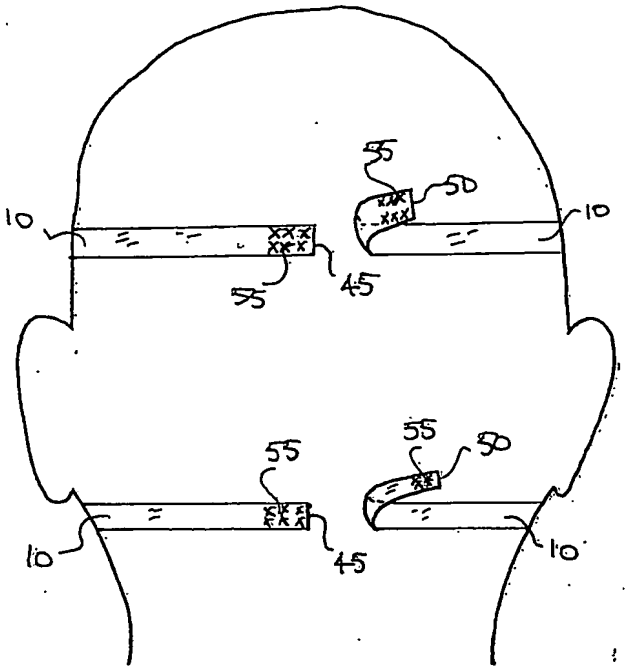
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FIG 7

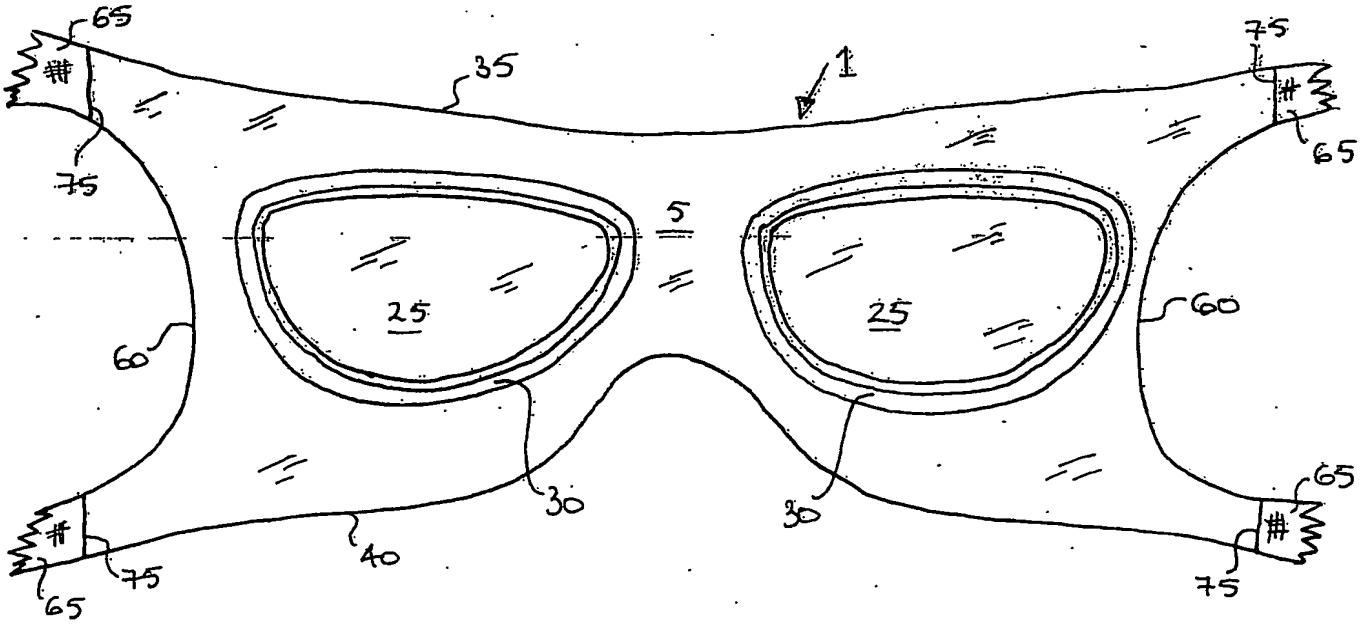
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FIG 8

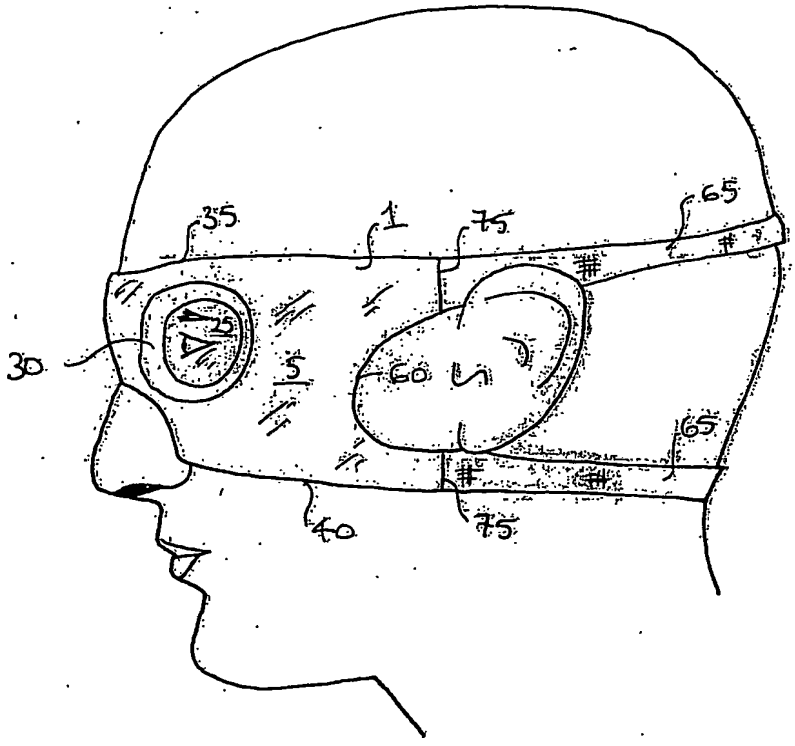

FIG 9